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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,922	02/08/2001	Jyrki Hiltunen	365-494P	4521

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EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,922

Applicant(s)

HILTUNEN, JYRKI

Examiner

Walter D. Griffin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 10-12 and 17-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: The expressions “15 Φ m” on page 2, line 9 and on page 5, line 13 appear to be incorrect. Perhaps the correct expression should be “15 μ m”. Also, the specification includes explicit references to claims 1 and 13 on page 1, lines 3 and 4 and lines 11 and 12 and on page 4, lines 16-20. The examiner cautions applicant regarding the specific reference to claim numbers in the specification since claim numbers in any patent issuing from an application can be different from the claim numbers in the application as filed.

Appropriate correction is required.

Claim Objections

Claims 10-12 and 17-22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims not been further treated on the merits.

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Claim 1 is objected to because of the following informalities: Claim 1 should end in a period, not a comma. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9, 15, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

✓ Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are features such passing the gas into the multiple inlet cyclones and then separating the solids from the gas in these cyclones.

✓ Claim 3 is also indefinite because it is unclear what types of cyclones are encompassed by the expression “conventional cyclone”. Also, it is unclear if the expression “of the same” refers to both the conventional and multiple inlet cyclones or refers only to one of these types of cyclones.

✓ Claim 5 is also indefinite because the expression “said primary and secondary separator apparatuses” lacks proper antecedent basis in claim 4. There is no mention of a primary separator in claim 4.

✓ Claim 5 is also indefinite because it is unclear what types of cyclones are encompassed by the expression “conventional cyclone”. Also, it is unclear if the expression “of the same”

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refers to both the conventional and multiple inlet cyclones or refers only to one of these types of cyclones.

— Claim 8 is also indefinite because the expression “said fluidized catalytic process” lacks proper antecedent basis in claims 1-5.

✓ Claim 9 is also indefinite because the expression “said process discharge gas” lacks proper antecedent basis in claims 1-5

* Claim 15 is indefinite because the expression “said gas inlet channel (15)” lacks proper antecedent basis in claim 13. Also, the expression “the cyclone separation chamber” lacks proper antecedent basis in claims 13 and 14.

Claim 16 is indefinite because the expression “the center conduits (37A-37E)” lacks proper antecedent basis in claim 13.

✓ Claim 16 is also indefinite because the expression “common gas inlet channel (40)” appears to be incorrect. On page 13, line 3, of the specification, feature (40) is described as a lower space of the cyclone. It does not appear to be an inlet channel.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Davenport et al. (2,553,175).

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The Davenport reference discloses an apparatus for separating solid particles from a gaseous stream. The apparatus comprises at least two multiple inlet cyclones (35) connected in a parallel configuration. These multiple inlet cyclones have a common gas inlet channel (42) formed between two concentric cylindrical surfaces. This gas inlet channel has a circular cross section. The cyclones operate in the interior space of the gas inlet channel. Center conduits of the cyclones pass through a common gas inlet channel. The process of using the apparatus comprises passing a gaseous stream containing solid particles into a separator apparatus that contains at least two multiple inlet cyclones (35) connected in a parallel configuration whereby the particles are separated from the gas by centrifugal force. The gaseous stream is a flue gas from a primary cyclone separator. See the figures and col. 2, line 32 through col. 5, line 25.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davenport et al. (2,553,175).

The Davenport reference discloses a process for separating solid particles from a gaseous stream. The process comprises passing a gaseous stream containing solid particles into a separator apparatus that contains at least two multiple inlet cyclones (35) connected in a parallel configuration whereby the particles are separated from the gas by centrifugal force. The gaseous stream is a flue gas from a primary cyclone separator. See the figures and col. 2, line 32 through col. 5, line 25.

The Davenport reference does not disclose that the gaseous stream to be treated is obtained from a secondary separator apparatus. It also does not disclose the claimed source of the gaseous stream as in claims 6-9.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Davenport by using a gaseous stream from a secondary separator because any gas that contains solids would be effectively treated regardless of the number of prior separations of the solids from the gas. (1)

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Davenport by utilizing the separator to separate solids such as cracking catalysts or other particles from gases resulting from fluidized bed processes because any gas that contains particles would be effectively treated in the separator regardless of its source.

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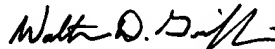
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses separators and processes for using these separators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
September 5, 2002